



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,965	12/08/2003	Mark M. Leather	00100.66.0025	3662

29153 7590 09/08/2006

ATI TECHNOLOGIES, INC.  
C/O VEDDER PRICE KAUFMAN & KAMMHOLZ, P.C.  
222 N.LASALLE STREET  
CHICAGO, IL 60601

EXAMINER

NGUYEN, HAU H

ART UNIT PAPER NUMBER

2628

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/730,965

Applicant(s)

LEATHER ET AL.

Examiner

Hau H. Nguyen

Art Unit

2628

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-18, 20-31 and 33-39 is/are rejected.
- 7) ☒ Claim(s) 6, 19 and 32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 06/23/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. The response filed on June 28, 2006, has been fully considered in preparing for this Office Action.

#### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 13 has claimed “the unified shader of claim 1, further comprising: a plurality of additional unified shaders...,” while claim 1 has claim “a unified shader”. Thus, one unified shader cannot include *in itself* a plurality of (other) unified shaders, and thus, claim language is interpreted as best understood by the examiner.

#### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 4-5, 7-14, 17-18, 20-27, 30-31, 33-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Donham et al. (U.S. Patent No. 6,980,209).

Referring to claim 1, as shown in Fig. 1, Donham et al. teach a unified shader 30 comprising: an input interface for receiving a packet from a rasterizer (col. 7, lines 12-18); a shading processing mechanism configured to produce a resultant value from said packet by performing one or more shading operations, wherein said shading operation comprise both texture operations and color operations; and an output interface configured to send said value to a frame buffer (col. 3, line 28 to col. 4, line 11, and Fig. 3, col. 7, lines 41-45).

As per claims 4 and 5, Donham et al. teach a code partition mechanism to partition code configured to instruct said shading mechanism, wherein the partitioning mechanism groups code together by level of indirection (col. 14, line 63 to col. 15, line 23).

As per claim 7, Donham et al. further teach a register subsystem 65 (col. 10, lines 29-33).

As per claims 8-12, as shown in Figs. 2 and 4, Donham et al. teach the shading mechanism further comprising a plurality of ALU (items 64, 71, 84, 91) /memory pairs (FIFOs 65, 74, 85, 94 for both data and instructions), constituting a single coherent memory structure synchronized by a scheduling clocking mechanism (col. 7, lines 12-35).

As per claim 13, Donham et al. teach a plurality of shaders, wherein said shaders are synchronized by a clock mechanism to process shading operations together as shown in Figs. 4 and 5 and col. 14, lines 44-62.

Claims 14, 17-18, 20-27, 30-31, 33-39, which are similar in scope to claims 1, 4-5, 7-13, are thus rejected under the same rationale.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 3, 15, 16, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donham et al. (U.S. Patent No. 6,980,209) in view of Zatz (U.S. Patent No. 6,864,893).

The teachings of Donham et al. are given above. However, Donham et al fails to explicitly teach or suggest that the interface is using a valid ready protocol. However, it is old and well known in the art that a valid ready protocol is like a ready-for-data signal that is a control signal showing that a connection exists for data to be transferred to or from another interface device. Moreover, Zatz teaches an interface logic that generates write address and write control signals based on the protocol required by a register file (col. 7, lines 3-9). Therefore, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the teachings of Zatz into the system of Donham et al because doing so would provide a system having valid ready signal that serves both address ready and data ready signaling function, thereby enhance system flexibility. Therefore, at least claims 2, 3, 15, 16, 28 and 29 would have been obvious.

***Allowable Subject Matter***

8. Claims 6, 19 and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2628

9. The following is a statement of reasons for the indication of allowable subject matter: The prior art made of record fails to anticipate or make obvious the claimed invention. Specifically, the prior art fails to teach or suggest, in combination with the remaining elements and/or step, an input state machine; a plurality of ALU state machine and a plurality of texture machines as recited in claims 6, 19 and 32.

***Response to Arguments***

10. Applicant's arguments, filed June 28, 2006 with respect to the rejections of claims 1-39 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made above.

***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hau H. Nguyen whose telephone number is: 571-272-7787. The examiner can normally be reached on MON-FRI from 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794.

The fax number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 2628

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

H. Nguyen

8/28/2006



KEE M. TUNG  
SUPERVISORY PATENT EXAMINER